L 42078-66

ACC NR: AP6018364

characteristics.

A Hungarian paper described the use of a pulse counter for period measurements. D. Al'bert et. al. (GDR) reported on the measurement of neutron gas temperatures in the reactor core using Lu^{176}, Eu^{151}, and Pu^{239} resonance detectors.

S. Ishmayev (USSR) presented the experimental results of neutron thermalization in respect to time in hydrogenous moderators.

A number of papers dealt with the results of measuring neutron noise in a reactor in connection with the determination of the transfer function and other reactor characteristics. One of the Polish papers described the possibility of controlling (with ±3% accuracy) the reactor power level based on the activity of N^{16} formed in the water coolant. (Zhemchuzhnikov, G. Conference on physics and engineering of research reactors. Atomnaya energiya, May 1966, 450-451). [FSB: v. 2, no. 8]

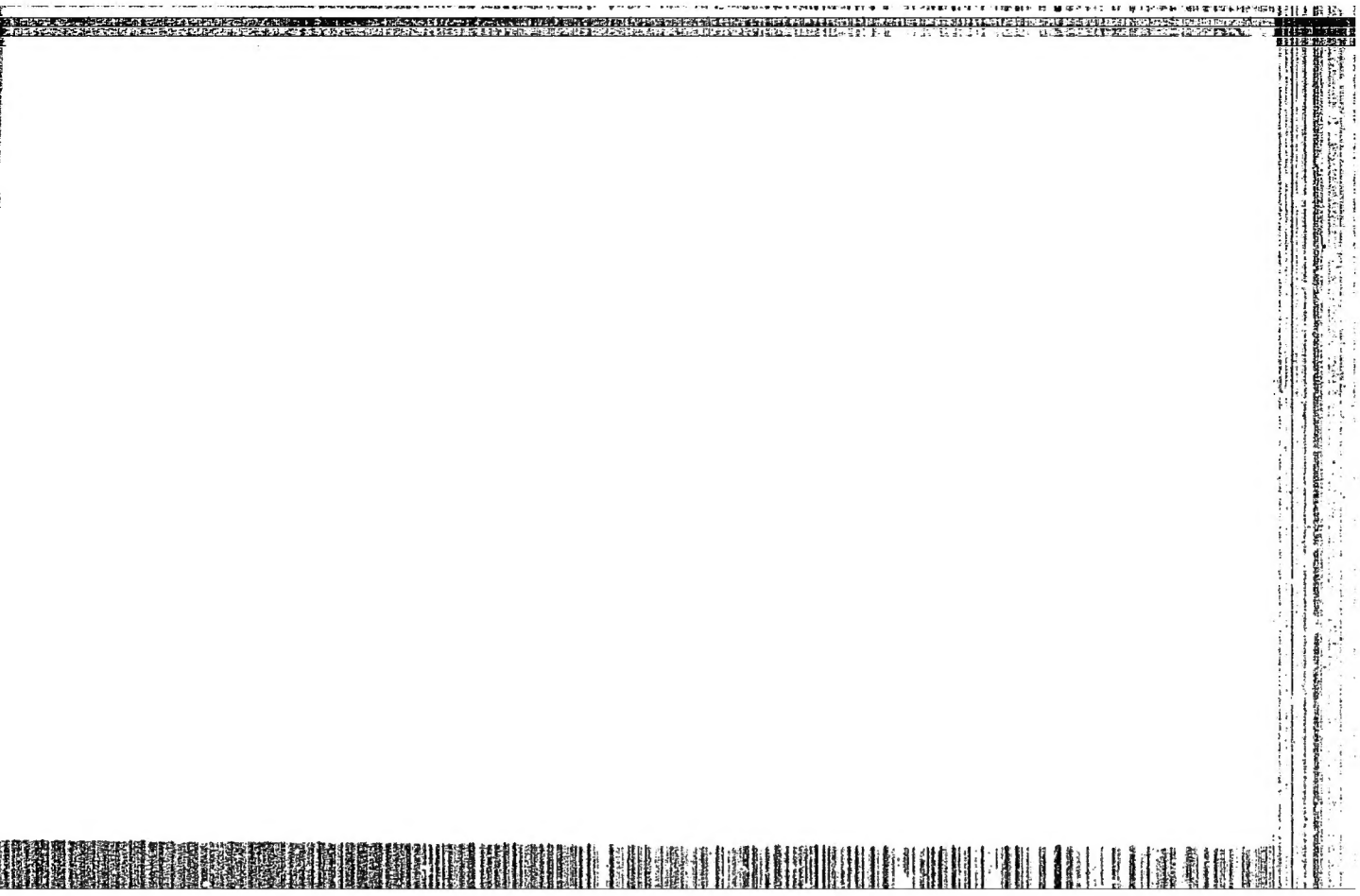
SUB CODE: 20, 18 / SUBM DATE: none

Card 5/5 af

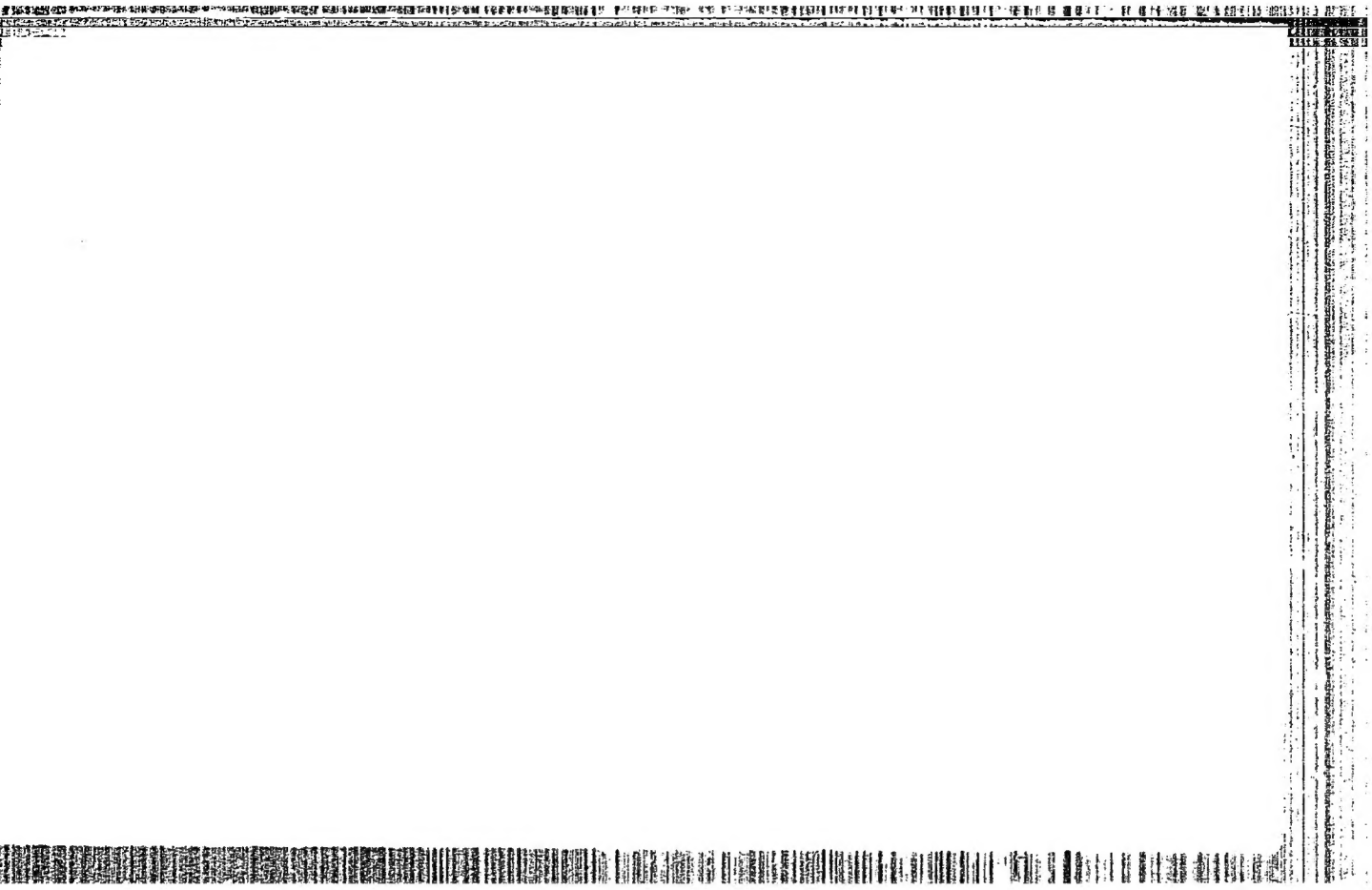
ZHEMCHUZHNIKOV, G.V.; GIRENKO, V.S.

Deformation aging and brittle fracture of metals. Avtom. svar. 17 no.10:8-13 O '64 (MIRA 18:1)

1. Institut elektrosvarki imeni Ye.O. Patona AN UkrSSR.



APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R002064710016-4"



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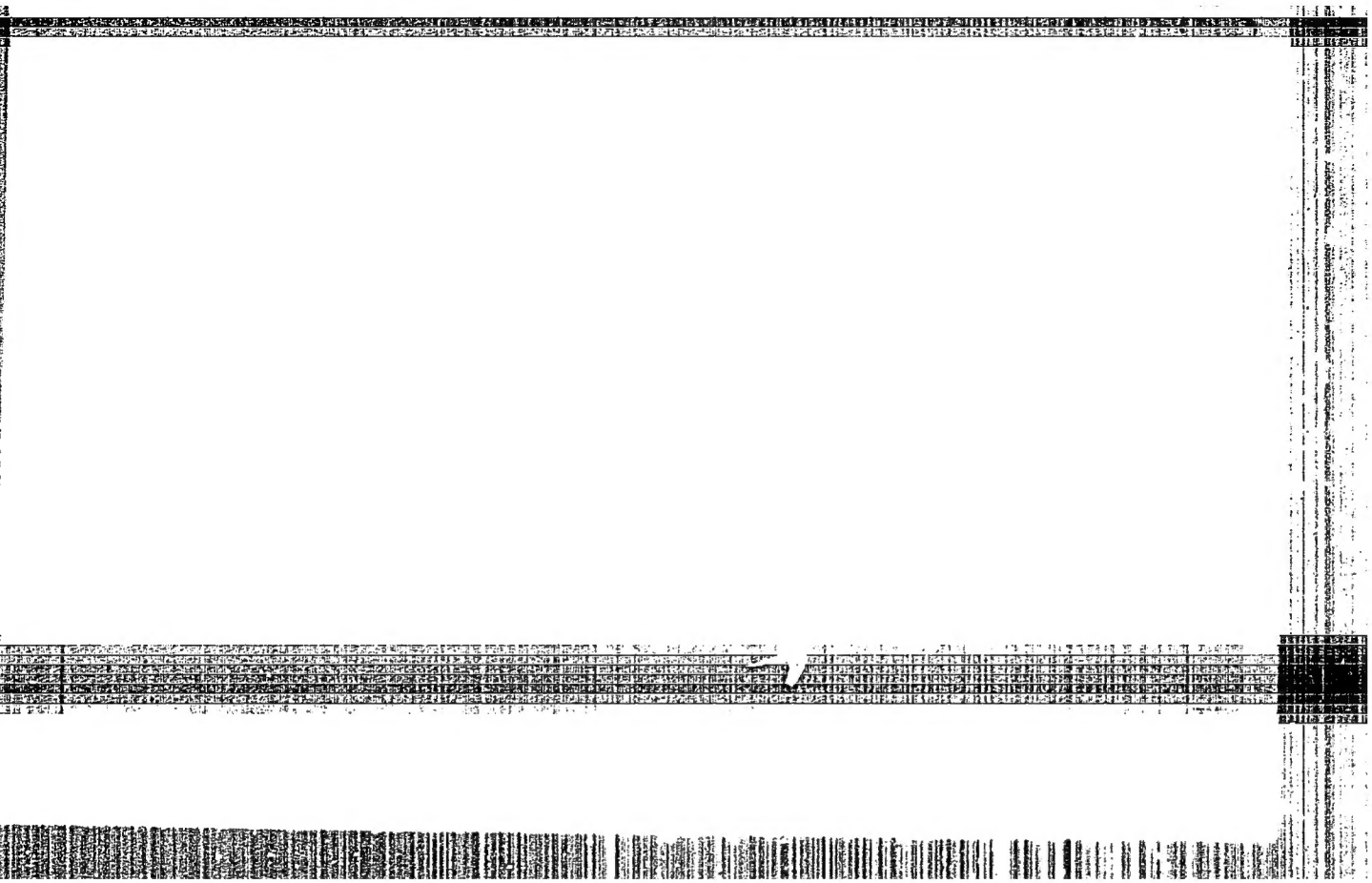

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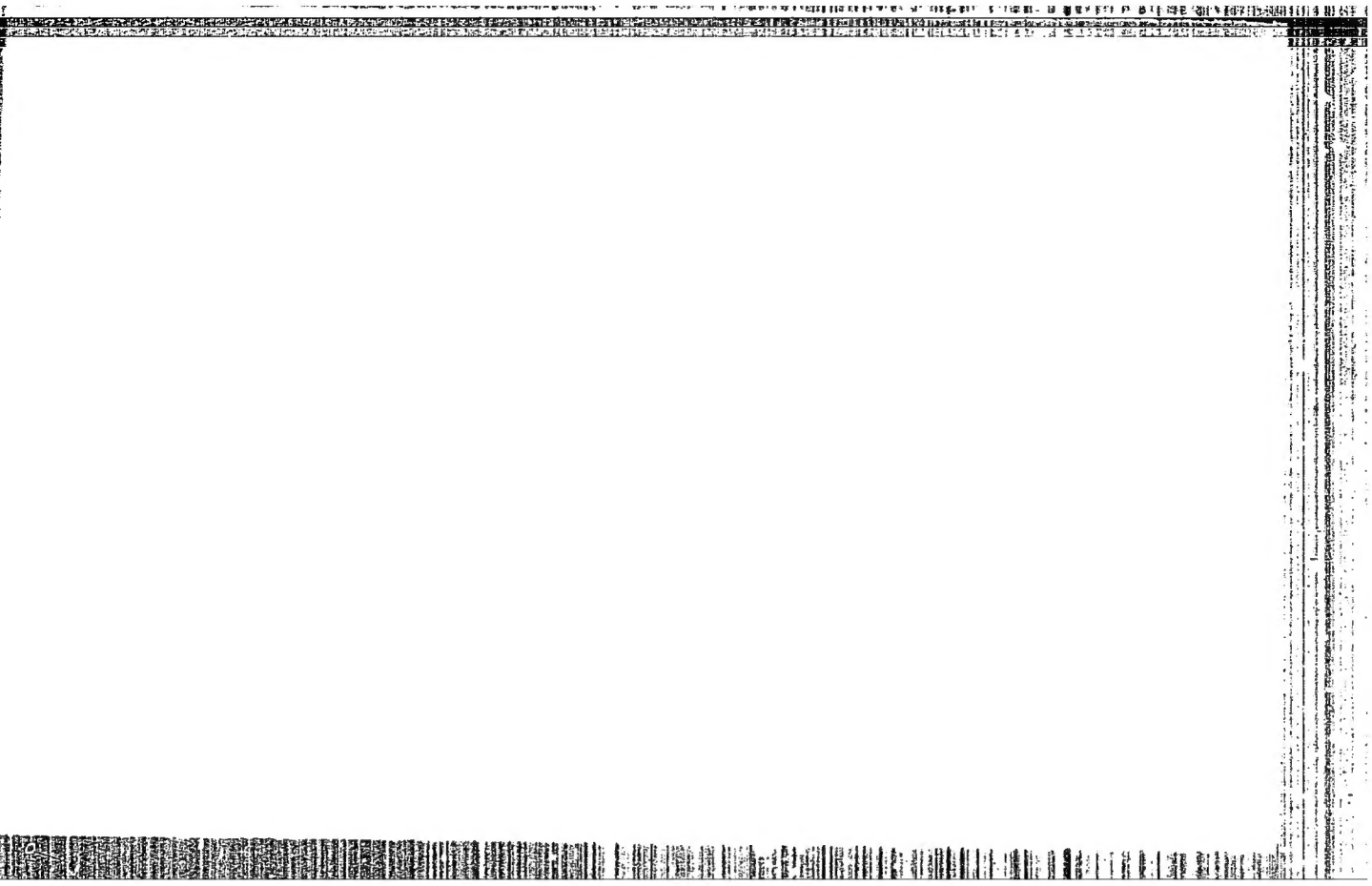

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R002064710016-4"

SHEVERNITSKIY, V.V.; ZHEMCHUZHNIKOV, G.V.; GIRENKO, V.S.

Designs of two structural elements joined at an angle. Avtom. svar. 16 no.6:45-48 Je '63. (MIRA 16:7)

1. Institut elektrosvarki im. Ye.O.Patona AN UkrSSR.
(Structural frames--Welding)

S/125/61/000/004/008/013
A161/A127

AUTHORS: Zhemchuzhnikov, G. V. Romanovskiy, R. G.

TITLE: Static strength of spot-welded joints at normal and low temperatures

PERIODICAL: Avtomaticheskaya svarka, no. 4, 1961, 54 - 60

TEXT: The purpose of the described experiments was to investigate the static strength of spot-welded joints in 6 + 6 and 8 + 8 mm thick steel parts at room temperature as well as below the freezing point. Two series of welded specimens of Ст.3 (St.3) steel were tested with shearing load only, and with shearing load combined with torsion. The joints were made with one, two and three spot welds, and with different eccentricity, as well as without eccentricity. A bath of gasolin with solid CO_2 was used to chill the specimens to -65°C for tests. The specimen temperature rose slightly while being on the 300-ton tension test machine, and attained -55° at the moment of rupture. The temperature was measured with thermocouples. The article includes illustrations of the different joints and tables presenting the results of tests. Generally, the tests proved the following: 1) Ruptures were located in spot welds regardless of the test temperature; 2) The amount of eccentricity had no effect on the maximum rated shear stress in torsion;

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A161/A127

3) The strength of joints increased with a decreasing temperature. Conclusions: 1) Joints produced by resistance spot welding may be used in light frame structures of low-carbon steel of up to 8 mm thickness. The experiment data may be utilized for strength calculations. 2) Frame structures fabricated by spot welding can be dependable in service at temperatures above as well as below the freezing point. There are 5 figures, 5 tables and 5 references: 4 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: C. A. Burton, Spot Welding Medium and Heavy Girder Structures, "Welding and Metal Fabrication", Sept. 1957.

ASSOCIATION: Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye. O. Patona AN USSR ("Order of the Red Banner of Labor" Electric Welding Institute im. Ye. O. Paton AS UkrSSR)

SUBMITTED: November 9, 1960

22237
S/125/61/000/001/006/016
A161/A133

1.2300

AUTHORS: Shevernitskiy, V.V., Zhemchuzhnikov, G.V.

TITLE: Butt joint design for two angle bars

PERIODICAL: Avtomaticheskaya svarka, no. 1, 1961, 44-47

TEXT: It is not clear to designers what is the proper butt joint design between two angle bars under action of axial force. Such butt joints are avoided for two reasons - assembling of a butt joint with a definite gap is difficult, and weld defects are possible if the operator is not sufficiently skilled. Experiments were carried out to find the optimum joint design. All test specimens were made of Ст.3кп (St.3kp) steel (rimmed) and welded manually with УОНИ-13/45 (UONI-13/45) electrodes and subjected to tensile tests at 50-55°C after freezing in a gasoline bath cooled with dry carbonic acid. The five different joint types are illustrated. The joint by single butt weld (1) proved very good (when sound), and the rupture was tough and at some distance from the butt weld. The strength was somewhat lower in one such joint with cavities taking up 5-7% of the total cross section area. The

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Butt joint design for two angle bars

joint (2) with butt faces put together without a gap was weak. The nominal ultimate stress in it was below the yield limit, and the rupture was brittle. The other three joints (3,4 and 5), with a gap of 20 mm and wider, or with the angle fishplate attached with the aid of flank and face seams, were good. It was thus proven that joints with angle fishplate fixed by flank seams only and with narrow gap should not be used. An additional face seam in such joints is very advisable. Of the fishplate joints the (5) is to be preferred, but the (1) type is better, provided that skilled operators are available, and assembly and gap adjustment not too difficult. It requires a minimum of metal, parts and weld metal. The test results may be applied for other bar shapes like U-bars, double-T, etc. There is 1 figure and 2 Soviet-bloc references.

ASSOCIATION: Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im.Ye. O. Patona AN USSR ("Order of the Red Banner of Labor" Electric Welding Institute im.Ye.O.Paton AS UkrSSR)

SUBMITTED: May 26, 1960

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PHASE I BOOK EXPLOITATION SOV/5426

Zhemchuzhnikov, Georgiy Vladimirovich

Svarka metallokonstruktsiy (Welding of Metal Constructions) Moscow, Mashgiz, 1960. 73 p. (Series: Biblioteka svarshchika). 15,000 copies printed.

Ed. of this issue: S. L. Mandel'berg, Candidate of Technical Sciences; Chief Ed. (Southern Division, Mashgiz): V. K. Serdyuk, Engineer; Ed.: V. V. Mayevskiy; Tech. Ed.: M. S. Gornostaypol'skaya; Editorial Board: A. Ye. Asnis, A. A. Kazimirov, B. I. Medovar, B. Ye. Paton (Resp. Ed.), and V. V. Podgayetskiy.

PURPOSE: This booklet is intended for welders.

COVERAGE: Fundamentals of the electric welding of widely-used metal constructions are stated along with the regimes of automatic and semiautomatic flux-shielded welding of simple joints. Recommendations are given for selecting electrodes and electrode wires. Measures for the prevention of defects are shown,

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as well as methods of defect removal and problems in the prevention of distortions. No personalities are mentioned. There are no references.

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AVAILABLE: Library of Congress

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VK/wrc/ec
7-29-61

PATON, B.Ye., akademik, doktor tekhn.nauk, laureat Leninskoy premii; VOLOSHKEVICH, G.Z., kand.tekhn.nauk, laureat Leninskoy premii; OSTROVSKAYA, S.A., kand.tekhn.nauk; DUDKO, D.A., kand.tekhn.nauk; POKHODNYA, I.K., kand.tekhn.nauk; STERENBOGEN, Yu.A., kand.tekhn. nauk; RUBLEVSKIY, I.N., inzh.; ZHEMCHUZHNIKOV, G.V., kand.tekhn. nauk; ROZENBERG, O.O., inzh.; SEVBO, P.I., kand.tekhn.nauk; NOVIKOV, I.V., inzh.; MEDOVAR, B.I., kand.tekhn.nauk; DIDKOVSKIY, V.P., inzh.; RABKIN, D.M., kand.tekhn.nauk; TYAGUN-BELOUS, G.S., inzh.; ZARUBA, I.I., kand.tekhn.nauk, retsenzent; GREBEL'NIK, P.G., kand.tekhn.nauk, red.; TINYANIY, G.D., red.

[Electric slag welding] Elektroshlakovaia svarka. Izd.2., ispr. i dop. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1959. 409 p. (MIRA 13:4)

1. AN USSR (for Paton).
(Electric welding)

SHEVERNITSKIY, V.V., kand. tekhn. nauk; ZHEMCHUZHNIKOV, G.V., kand. tekhn. nauk.

Brittle fracture of welded structures. Vest. mash. 39 no.1:24-28 Ja '59. (MIRA 12:1)
(Welding) (Steel--Brittleness)

ZHEMCHUZHNIKOV, G.Ye., insh.

Effect of frame bearing tolerances on engine efficiency. Rech. transp. 17 no.8:14-18 Ag '58. (MIRA 11:10)
(Bearings (Machinery)) (Tolerance (Engineering))
(Marine engines)

ACC NR: AP6012334 SOURCE CODE: UR/0317/65/000/006/0078/0080

AUTHOR: Zhemchuzhnikov, I. (Major general of engineering corps)

ORG: none

TITLE: Prevention and correction. [Maintenance practices of the Soviet army engineers]

SOURCE: Tekhnika i vooruzheniye, no. 6, 1965, 78-80

TOPIC TAGS: military engineering, servicing technique, specialized training

ABSTRACT: The maintenance practices of the Soviet Army Engineering Forces and associated inadequacies (low quality, high cost, excessive time) are discussed. Although innovations resulting from the initiative of specialists have improved maintenance, in the final analysis, the quality and timeliness of maintenance depends on the proper training of maintenance personnel. Since in the Soviet Union there are no service schools for training personnel to maintain the equipment of the army engineers, the author recommends that such schools should be established. Orig. art. has: 1 photograph.

SUB CODE: 15/ SUBM DATE: none/ ORIG REF: 001

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ZHEMCHUZHNIKOV, M.

Our work practice with the "Donbass" cutter-loader. Mast.ugl.4 no.7:6-8 Jl'55. (MIRA 8:10)

1. Brigadir kombaynovoy brigady shakhty no.15-16 kombinata Rostovugol'.
(Coal mining machinery)

ZHEMCHUZHNIKOV, S.L.

PHASE I BOOK EXPLOITATION 431

Akademiya nauk URSR, Kiyev. Instytut elektrozvaryuvannya

Rukovodstvo po elektrodugovoy svarke pod flyusom (Handbook of Flux-shielded Arc Welding) Kiyev, Mashgiz, 1957. 235 p. 11,000 copies printed.

Ed.: Paton, B. Ye., Corresponding Member, Ukrainian Academy of Sciences, Doctor of Technical Sciences; Reviewer: Trochun, I. P., Candidate of Technical Sciences; Ed. of Publishing House: Serdyuk, V. K.; Tech. Ed.: Rudenskiy, Ya. V.; Managing Ed. of the Ukrainian Branch of Mashgiz: Zalogin, N. S.

PURPOSE: This book is intended for the use of welders and welding foremen.

COVERAGE: The book presents the principles and methods of flux-shielded automatic arc welding. Automatic and semiautomatic welding machines of modern design are described, and instructions are given for their operation and adjustment. Peculiarities of welding and surfacing operations are described in detail. Specific instructions are given for the welding of low-, medium-, and high-

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carbon steels, low- and high-alloy steels, and nonferrous metals. Chapters I, II, IV, VI, X, and XI were written by B.I. Medovar, Candidate of Technical Sciences; Chapters III, VIII, IX, XII, and XIV by V.V. Podgayetskiy, Candidate of Technical Sciences; Chapters V and VII by S.L. Mandel'berg, Candidate of Technical Sciences; and Chapters XIII and IV by S.L. Zhemchuzhnikov, Candidate of Technical Sciences. It is stated that the modern method of flux-shielded arc welding, as currently practiced in the Soviet Union, was developed in 1940 at the Institut Elektrosvarki (Institute of Electric Welding), Ukrainian Academy of Sciences, under the leadership of Yevgeniy Oskarovich Paton, Academician. The Institute, which now has the by-name "imeni Paton", has collaborated for a number of years with TsNIITMASh (Tsentral'nyy nauchno-issledovatel'skiy institut mashinostroyeniya i metalloobrabotki: Central Scientific Research Institute for Machine Building and Metalworking), MVTU imeni Baumana (Moskovskoye vyssheye uchilishche imeni Baumana: Moscow Higher Technical School imeni Bauman), and the plant "Elektrik". This collective research is said to be responsible for the great increase in the use of welding in the USSR during recent years. There are 13 references, all Soviet.

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AVAILABLE: Library of Congress (TK4660.A457)

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GO/ad
7-24-58

ZHEMCHUZHNIKOV, Yuriy Apollonovich; BOTVINKINA, L.N., otv.red.; PEYVE, A.V., glavnyy red.; MARKOV, M.S., red.; MENNER, V.V., red.; TIMOFEYEV, P.P., red.; MISHINA, R.L., red.izd-va; YEGOROVA, N.F., tekhn.red.

[Seasonal varvity and peridiocity of sedimentation] Sezonnaia sloistost' i periodichnoist' osadkonakopleniia. Moskva, Izd-vo Akad. nauk SSSR, 1963. 68 p. (Akademiia nauk SSSR. Geologicheskii institut. Trudy, no.86). (MIRA 16:8)

1. Chleny-korrespondenty AN SSSR (for Zhemchuzhnikov, Peyve).
(Deep-sea sediments)
(Silt)

ZHEMCHUZHNIKOV, Yu.A.; YABLOKOV, V.S.; BOGOLYUBOVA, L.I.; BOTVINKINA, L.N.; FEOFILOVA, A.P.; RITENBERG, M.I.; TIMOFEYEV, P.P.; TIMOFEYEVA, Z.V.; KROPOTKIN, P.N., red.izd-va; SHEVCHENKO, G.N., tekhn.red.

[Structure and factors determining the accumulation of basic coal-bearing series and layers in the central Carboniferous of the Donets Basin. Part 1.] Stroenie i usloviia nakopleniia osnovnykh uglenosnykh svit i ugol'nykh plastov srednego karbona Donetskogo basseina. Moskva, Izd-vo Akad. nauk SSSR, 1959. 331 p. (Akademiia nauk SSSR. Geologicheskii institut. Trudy, no.15)
(MIRA 12:6)

(Donets Basin--Coal geology)

ZHEMCHUZHNIKOV, YU. A. DECEASED 1956

Geology

see IGLC

BELYANKIN, D.S., akademik; BETEKHTIN, A.G., akademik; BORISYAK, A.A., akademik; GRIGOR'YEV, A.A., akademik; NALIVKIN, D.V., akademik; SHATSKIY, N.S., akademik; VLASOV, K.V.; ZHEMCHUZHNIKOV, Yu.A.; ORLOV, Yu.A.; FEDOROV, S.F.; KUZNETSOV, I.V., red.; MIKULINSKIY, S.R., red.; KUZNETSOVA-YERMOLOVA, Ye.B., red.; KRYUCHKOVA, V.N., tekhn. red.

[Russian scientists; sketches about outstanding workers in natural sciences and technology; geology and geography] Liudi russkoi nauki; ocherki o vydaiushchikhsia deiateliakh estestvoznaniia i tekhniki. Geologiia, geografiia. Moskva, Gos. izd-vo fiziko-matem. lit-ry, 1962. 579 p. (MIRA 15:3)

1. Chlen-korrespondent Akademii nauk SSSR (for Vlasov, Zhemchuzhnikov, Orlov, Fedorov).
(Geology) (Geography)

KUPRASH, R.P.; ZHEMCHUZHNIKOV, Yu.S.

Evaluating the efficiency of slide-prevention measures. Avt.dor. 28 no.6:20 Je '65. (MIRA 18:8)

VOLKONSKAYA, T.G.; ZHEMCHUZHNIKOVA, D.M.; ZHOGOLEV, Ye.A.; KOTIK, I.P.

Programs for calculating Bessel's functions. Vych. met. i prog. 1:316-323 '62. (MIRA 15:8)

(Bessel's functions)

ZHEMCHUZHNIKOVA, L.E.

Intraorganic lymphatic system of the heart under normal conditions and in pericarditis. Vest.khir. 84 no.1:72-80 Ja '60. (MIRA 13:10)

(LYMPHATICS) (HEART) (PERICARDITIS)

ZHEMCHUZHNIKOVA, L.Ye. (Orenburg)

Changes in the vascular system of the pancreas in experimental diabetes in rats. Probl.endok.i gorm. 5 no.5:20-26 S-O '59.
(MIRA 13:5)

1. Iz kafedry normal'noy anatomii (i.o. zav. - dotsent kand.med.nauk V.N. Nadeshdin) Leningradskogo sanitarno-gigiyenicheskogo meditsinskogo instituta i kafedry patologicheskoy fiziologii (zav. - dotsent kand.med.nauk I.M. Sokoloverova) Orenburgskogo meditsinskogo instituta.

(PANCREAS blood supply)
(DIABETES MELLITUS exper.)

NADEZHDIN, V.N.; BALASHEV, V.N.; ZHEMCHUZHNIKOVA, L.Ye.

Medical museum of the Department of Normal Anatomy at the Leningrad Medical Institute of Sanitation and Hygiene. Arkh. anat. gist. i embr. 41 no.9:111-120 S '61. (MIRA 15:1)

1. Kafedra normal'noy anatomii (zav. - doktor med.nauk V.N.Nadezhdin) Leningradskogo sanitarno-gigiyenicheskogo meditsinskogo instituta. Adres avtorov: Leningrad, ul. Kurakina, 1/3, Leningradskiy sanitarno-gigiyenicheskiy meditsinskiy institut, kafedra normal'noy anatomii.
(LENINGRAD--MEDICAL MUSEUMS)
(ANATOMY, HUMAN)

BALASHEV, V.N. (Leningrad, K-18, Institutskiy per., 5, fligel' 7, kv.62)
ZHEMCHUZHNIKOVA, L.Ye. (Leningrad, K-18, Institutskiy per., 5, fligel' 7, kv.62)

Internal lymphatic system of the main bronchi in man. Arkh. anat. gist. i embr. 40 no.3:66-69 Mr '61. (MIRA 14:5)

1. Kafedra normal'noy anatomii (zav. - doktor med.nauk V.N. Nadezhdin) Leningradskogo sanitarno-gigiyenicheskogo meditsinskogo instituta.

(LYMPHATICS) (BRONCHI)

BALASHEV, V.N.; ZHEMCHUZHNIKOVA, L. Ye.

Lymphatic system of the transitional portion of the serous membrane in the human heart. Arkh. anat., gist. i embr. 47 no. 11:83-88 N '64 (MIRA 19:1)

1. Kafedra normal'noy anatomii (zav. - prof. V.N. Nadezhdin) Leningradskogo sanitarno-gigiyenicheskogo meditsinskogo instituta. Submitted September 25, 1962.

ZHEMCHUZHNIKOVA, L. Ye. (Leningrad, K-18, Institutskiy per., d.5, fligel' 7, kv.62)

Age changes in the anatomy of the lymphatic system of the human pancreas. Arkh. anat. gist. i embr. 36 no.3:53-9 Mr '59. (MIRA 12:7)

1. Kafedra normal'noy anatomii (zav. - chlen-korrespondent AMN SSSR prof. D. A. Zhdanov) Leningradskogo sanitarno-gigiyenicheskogo meditsinskogo instituta.

(LYMPHATIC SYSTEM, physiol.
pancreas, eff. of aging (Rus))
(AGING, eff.
on lymphatic system of pancreas (Rus))

ZHEMCHUZHNIKOVA, L.Ye.

ZHEMCHUZHNIKOVA, L.Ye., assistent

Lymphatic system of the heart in man. Trudy LSGMI 17:63-82 '53. (MLRA 10:8)

1. Kafedra normal'noy anatomii Leningradskogo sanitarno-gigiyenicheskogo meditsinskogo instituta (zav. kafedroy - chlen-korrespondent AMN SSSR, prof. D.A.Zhdanov)

(HEART, anatomy and histology,
lymphatic system)
(LYMPHATIC SYSTEM,
heart)

ZHEMCHUZHNIKOVA, M.A., kand. tekhn. nauk, dotsent

Reducing the construction costs of railroads at the expense of the installation of perfect CTC systems. Trudy MIIT no.158: 121-125 '62. (MIRA 16:6)

(Railroads—Cost of construction)
(Railroad engineering)

ZHEMCHUZHNIKOVA, M.A., kandidat tekhnicheskikh nauk.

Selecting ruling grades in planning second tracks and reconstructing single track railroads. Transp.stroi. 6 no.5:19-21 My '56. (MLRA 9:8)

(Railroads--Grades)

BASKAKOV, V.S.; VIKHLYAYEV, V.M.; GAVRILOV, R.I.; GREBNEV, P.A.; ZHEMCHUZHNI-KOVA, Ye.Ye.; IDEL'SON, I.D.; MEN'SHIKOV, N.S.; MOROZOVA, Yu.G.; POPOV, V.A.; FEDOROV, S.F.; PAVLOV, Ya.M., dotsent, kandidat tekhnicheskikh nauk, redaktor; ZHIGLINSKIY, A.A., inzhener, redaktor; HUNICH, K.N., inzhener, redaktor; SOKOLOVA, L.V., tekhnicheskiy redaktor

[A collection of drawings for parts used in machine building] Sbornik mashinostroitel'nykh chertezhei dlia detalirovok. Izd. 2-oe, dop. i perer. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1956. 1 v., 50 l. (MLRA 10:2)
(Machinery--Design)

ZHEMCHUZHNAYA, Ye.A.

ZAKHAROVA, Galina Vasil'yevna, kand. tekhn. nauk; POPOV, Ivan Alekseyevich, kand. tekhn. nauk; ZHOROVA, Liliana Pavlovna; FEDIN, Boris Vladimirovich; Prinimali uchastiye: MUKHINA, Z.S., zasl. deyatel' nauki i tekhn. RSFSR; POPOVA, I.A., zasl. deyatel' nauki i tekhn. RSFSR; YEGOROVA, N.D., zasl. deyatel' nauki i tekhn. RSFSR; NIKITINA, Ye.I., zasl. deyatel' nauki i tekhn. RSFSR; ZHEMCHUZHNAYA, Ye.A., zasl. deyatel' nauki i tekhn. RSFSR; ZHABINA, V.A.; SAVITSKIY, Ye.M., red.; STROYEV, A.S., red.; ARKHANGEL'SKAYA, M.S., red. izd-va; KARASEV, A.I., tekhn. red.

[Niobium and its alloys] Niobii i ego splavy. By G.V.Zakharova i dr. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1961. 368 p. (MIRA 14:12)
(Niobium)

ZHEMEK, K.

85-8-17/18

AUTHOR: Zhemek, K.

TITLE: Glider Models with Turbulators (Modeli s turbulizatorami)

PERIODICAL: Kryl'ya Rodiny, 1957, Nr 8, p. 29 (USSR)

ABSTRACT: The author of this article describes two glider models: one of ordinary and simple arrangement and another - a flying wing. It is known that the profiles, having the thickness of the order from 11 to 15 per cent, have many advantages as compared with the thin profiles. But these advantages can be seen only on the large models, the Reynold's number (Re) of which exceeds the critical (Re_{cr}). Thus, for example, the profile Goettingen-387 of 14% thickness with Re = 82,000 has the flow around the wings up to the critical limit and poor aerodynamic characteristics of the model (aerodynamical efficiency of the order of 4). If a turbulator (turbulizator) of 0.8 - 1.5 mm diameter is placed alongside the leading edge of the wing then the quality increases not less than 2-3 times as result of the making of the flow turbulent (turbulizatiya potoka). Another way of making the air flow turbulent consists of utilization of the thin

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Glider Models with Turbulators (Cont.)

profiles with a small radius of the nose. The difficulty of their use is the small thickness which is the cause of insufficient strength of the wing. In addition to this thin profiles are characterized by a strong shifting of the pressure center, which lowers the longitudinal stability of the model. For the compensation of this, stabilizers of comparatively large areas are installed. The use of turbulators with the profiles of the thickness from 11 to 15 per cent gives the following advantages: the wing has a turbulent flow around it already at Re = 20,000, which permits the use of the thick profiles for the small models. On the models of the flying wing type on which the range of displacement of the pressure center is small, the use of turbulators permits to attain a good longitudinal stability. The glider model of the ordinary layout has a span of 1,200 mm.; the wing's chord is 120 mm., the wing area - 14.4 dm^2, the wing aspect ratio - 10, wing fin's area - 0.925 dm^2, flight weight 190 g.; load - 13.2 $\frac{g}{dm^2}$. The flying wing (glider) model

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Glider Models with Turbulators (Cont.)

has a span of 1,500 mm., wing chord - 120 mm., wing area - 16.5 dm^2, wing aspect ratio - 13.6; the angle by which the end profile is bent - 5°30', profile in the central part - Goettingen 584 13 per cent, profile at the wing's end - symmetrical Goettingen 409 13 per cent, load - 12.1 $\frac{g}{dm^2}$ and the flight weight - 200 g. The models are made from the popular materials: pine, plywood and from the aviation model paper. The article is illustrated by three figures.

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ZHEMEK, Kh.

PHASE I BOOK EXPLOITATION SOV/4020

Aviamodelizm; sbornik statey. Posobiye dlya rukovoditeley aviamodel'nykh kruzhkov i uchiteley (Aircraft Modeling; Collection of Articles. Textbook for Instructors of Model Aircraft Clubs and Teachers) Moscow, Uchpedgiz, 1960. 141 p. 12,000 copies printed.

Compilers: E.B. Mikirtumov, Candidate of Technical Sciences, and K.S. Lebedinskiy, Candidate of Technical Sciences; Ed.: A.Ye. Stakhurskiy; Tech. Ed.: V.I. Korneyeva.

PURPOSE: This book is intended for instructors and directors of model airplane clubs sponsored by DOSAAF (All-Union Voluntary Society for Promotion of the Army, Navy, and Air Force).

COVERAGE: The book consists of 47 articles covering various aspects of model aircraft design, construction and operation. The text contains many illustrations and diagrams. No personalities are mentioned. There are 185 references, all Soviet.

TABLE OF CONTENTS:

SAMOLEVSKIY, I.Ya.; ZHEMELA, G.P.; KEL'BIYEV, N.Sh.

Preceding crops and the quality of grain. Zemledelie 27 no.9:21-25 S '65. (MIRA 18:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sakharnoy svekly (for Samolevskiy, Zhemela). 2. Dagestanskiy nauchno-issledovatel'skiy institut sel'skogo khozyaystva (for Kel'biyev).

Chemetov, K.F.

VORONTSOV, A.G., red.; ZHEMELEV, L.F., red.; PANTELEYEVA, P.G., red.; SMIRNOV, V.I., red.; BELOZEROV, K.S., red.; TETERINA, Ye.G., red.; FEDOROV, A.N., red.; KHAR'KOVA, Ye.I., red.; SHUTOVA, O.I., red.; VORONTSOVA, Z.Z., tekhn.red.

[Economy of the Udmurt A.S.S.R.; a statistical manual] Narodnoe khoziaistvo Udmurskoi ASSR; statisticheskiy sbornik. Izhevsk, 1957. 135 p. (MIRA 11:3)

1. Udmurt A.S.S.R. Statisticheskoye upravleniye. 2. Nachal'nik, Statisticheskogo Upravleniya Udmurskoy ASSR (for Vorontsov)
(Udmurt A.S.S.R.--Statistics)

ZHEMENYAN, B. P.

COUNTRY : USSR
CATEGORY : Cultivated Plants. Fruits. Berries.

ABS. JOUR. : RZhBiol., No. 23 1958, No. 104803

AUTHOR : Zhemenyan, B. P.
INST. : Kolchian affiliate, Academy of Sciences USSR
TITLE : Development and the Spreading of the Root System of the Grapevine in Relation to the Mechanical Composition of the Soil.

ORIG. PUB. : Izv. Kolo. fil. AN SSSR, 1957, No. 4, 108-124

ABSTRACT : In the studies of the root system of grapevine Rara Nyagra, Kerna Nyera and Terras 20 on different soils in Kolkhvia (1947-1953), it was determined that in heavy loams, the direction of the roots is more or less horizontal (maximum depth of the spread of the roots is 80-90 cm). Cases occur when the roots go downward but after reaching a certain depth they again rise closer to the ground surface and can be injured by drought and frosts. In medium loams, the root system of the grapevine is not strongly developed, the direction of the roots is inclined, the roots seldom penetrate to 2 meters (the tap root

CARD: 1/2

COUNTRY :
CATEGORY :

ABS. JOUR. : RZhBiol., No. 1958, No. 104803

AUTHOR :
INST. :
TITLE :

ORIG. PUB. :

ABSTRACT : reaches to 1.80 m, the lateral ones - to 1.60 m), the optimum depth of the embedment of the roots is 80-90 cm. On sandy soils, the root system has a vertical direction; sometimes the roots are embedded at the depth of more than 2 m. On sandy loams and on light loamy chernozems, the roots have a direction approaching vertical or a more inclined one, and can penetrate to the depth of 2 m and more (the tap root to 2 m, the lateral ones - to 180 cm). -- Ye. T. Zhukovskaya

CARD: 2/2

ZHEMENYANU, B. P. Cand Agr Sci — (diss) "Influence of dichlorethane (DKhE) and the mixing of dichlorethane with paradichlorbenzene (PDB) on the growth and fructification of grapes in the pickling of soil in combatting phylloxera." Kishinev, 1960, 20 pp, (Min Agriculture, Moldavian SSR. Kishinev Agricultural Inst im M. V. Frunze), 100 copies, (KL, 31-60, 142)

ZHEMERDEY, A.I.

Material on the toxicology of tetrafluoroethylene [with summary in English]. Trudy LSGMI 44:164-176 '58 (MIRA 11:12)

1. Kafedra gigiyeny truda s klinikoy profzabolevaniy Leningradskogo sanitarno-gigiyenicheskogo meditsinskogo instituta (zav. kafedroy Ye. TS. Andreyeva-Galanina)
(FLUORIDES, tox.
tetrafluorethylene, in exper. animals (Rus))

L 10308-67
ACC NR: AP6029093 SOURCE CODE: UR/0413/66/000/015/0053/0054

INVENTORS: Goshkov, V. I.; Zhomorov, G. G.; Epshtoyn, I. I.

ORG: none

TITLE: Device for phase control of a controllable rectifier by the rectifiers. Class 21, No. 184333 [announced by Scientific Research Electrical Engineering Institute (Nauchno-issledovatel'skiy elektrotekhnicheskiy institut)]

SOURCE: Izobret prom obraz tov zn, no. 15, 1966, 53-54

TOPIC TAGS: semiconductor rectifier, electronic rectifier

ABSTRACT: This Author Certificate presents a device for phase control of a controllable rectifier by the rectifiers. The device contains a three-phase multi-winding transformer and at each rectifier a phase-shifting unit with a circuit for comparing the voltage of a secondary of one phase of the transformer with a fixed voltage. The device also contains at each rectifier a unit forming the peak voltage which limits from above the triggering angle of the power rectifier, a unit forming the half-wave voltage which limits the triggering angle from below, and a pulse shaper for the controlling pulses to the controllable semiconductor rectifier (see Fig. 1). To increase the reliability, the unit forming the half-wave voltage which limits from below the triggering angle of the power rectifier is in the form of a circuit containing a series-connected resistor, diode, and the secondaries of the other two

UDC: 621.314.632.032.434

Card 1/2

L 10308-67

ACC NR: AP6029893

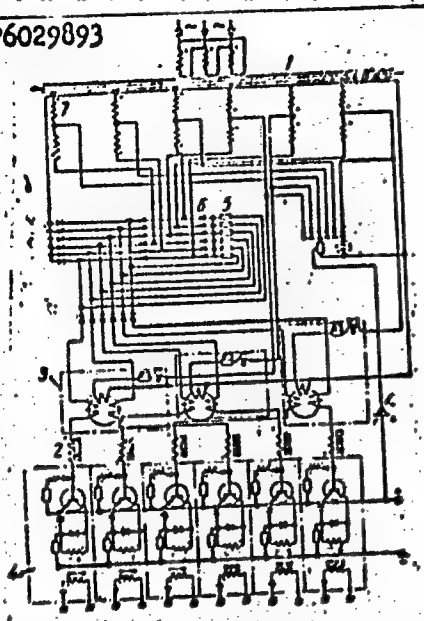

Fig. 1. 1 - three-phase transformer; 2 - transformer secondaries connected in comparison circuits of phase-shifting units; 3 - peak voltage forming units; 4 - controlling pulse shapers; 5 - unit resistors; 6 - unit diodes; 7 - transformer secondaries connected in half-wave voltage forming units

phases of the transformer connected in opposition. The whole circuit and the part containing the diode and resistor are shunted by diodes connected in the nonconducting direction with respect to the current in the comparison circuit. Orig. art. has: 1 diagram.

SUB CODE: 09/ SUBM DATE: 11Dec64

Card 2/2

ZHEMCHUZHEV, V.S.

Changes in waters during the exploitation of Lokbatan oil horizons.
Geol. nefti 2 no.11:45-50 N '58. (MIRA 11:12)

1.Neftepromyslovoye upravleniye Karadagneft'.
(Apsheron Peninsula--Oil field brines)

ZHEMEREV, V.S.

Defects in production strings and appearance of gas around wells in Karadag. Gaz. prom. no. 7:1-4 Jl '58. (MIRA 11:7)
(Karadag--Condensate oil wells)

ZHEMERICHKO, M.I.

Simultaneity of the development of the geosyncline and platform structures of eastern Ciscaucasia. Izv. vys. ucheb. zav.; neft' i gaz 7 no.7:113 '64. (MIRA 17:9)

1. Groznenskiy neftyanoy institut.

ZHEMERICHKO, M. I.

Age of faulting and time of the formation of oil pools in Karaganka-Chokrak sediments in front ranges. Trudy Groz. NII no.8:245-253 '60. (MIRA 13:8)

(Terek Range--Petroleum geology)
(Sunzha Range--Petroleum geology)

ZHEMERICHKO, M.I., aspirant

Genesis of the fold movements of the foreranges of northeastern Ciscaucasia. Izv. vys. ucheb. zav.; geol. i razv. 7 no.5:26-33 My '64. (MIRA 18:3)

1. Groznenskiy neftyanoy institut.

ARANCHIY, G.V., inzh.; ZHEMEROV, G.G., inzh.; EPSHTEYN, I.I., inzh.

Method for analyzing autonomous inverters supplying power to asynchronous motors. Elektrotekhnika 36 no.5:17-21 My '65. (MIRA 18:5)

L 20413-66 EWT(1)/ETC(f)/EWG(m)/EWA(h)
ACC NR: AP6009850 SOURCE CODE: UR/0413/66/000/004/0040/0041

AUTHOR: Aranchiy, G. V.; Zhemerov, G. G.; Savel'yev, L. Ye.; Epshteyn, I. I.

ORG: none

TITLE: D-c to a-c converter [announced by the Scientific Research Institute of Electrical Engineering (Nauchno-issledovatel'skiy elektrotekhnicheskiy institut)]. Class 21, No. 178890

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 4, 1966, 40-41

TOPIC TAGS: current converter, transistorized converter

ABSTRACT: A transistorized d-c to a-c converter containing a transformer with feedback windings (see figure) is introduced. To enhance frequency stability when ordinary magnetic materials are used, an additional transformer is employed. Two of its primary windings are connected in series with the feedback windings; its secondary windings are connected in parallel with the capacitor. Frequency control is accomplished by a variable inductance connected in parallel with the capacitance. Orig. art. has: 1 figure. [JR]

Card 1/2 UDC: 621.314.572

L 2041.-66
ACC NR: AP6009850

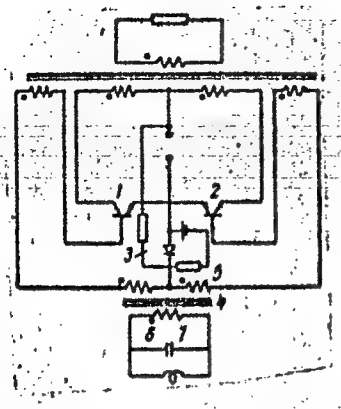

Fig. 1. D-c to a-c converter

1, 2 - Transistors; 3 - bias circuit; 4 - additional transformer; 5 - primary windings; 6 - secondary windings; 7 - capacitor.

SUB CODE: 09/ SUBM DATE: 28Jan65/ ATD PRESS: 4122

Card 2/2 ULR

ZHEMEROV, Ya.I., inzhener.

Factors hindering the improvement of electric installation work. Prom.energ. 11 no.8:31-32 Ag '56. (MLRA 9:11)

1. Glavelectromontash Minmetallurgkhimstroya.
(Electric engineering)

Main Admin for Electric Installations
Min of Met & Chem Ind Enterprises

ZHEMEROV, Ya.I., inzhener.

Ways of economizing on steel pipe in electrical work. Stroi. prom. 34 no.2:14-18 F '56. (MLRA 9:5)

1. Glavelektromontazh Minmetallurgkhimstroya.
(Electric conduits)

KRYAUCHYUNAS, I.I. [Kriauciunas, J.]; ZHEMIS, R.I. [Ziemys, R.]

Dependence of some properties of polystyrol, polymethyl metacrylate and their copolymer on molecular weight. Trudy AN Lit. SSSR. Ser. B no. 1:83-93 '63. (MIRA 17:5)

1. Institut khimii i khimicheskoy tekhnologii AN Litovskoy SSR.

/006/015

AUTHORS: Kryauchyunas, I. I. and Zhemis, R. L.

Dependence of certain properties of polystyrene, poly-

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cular weight. Measurements of c_l and c_t may, therefore, be used to determine the main physical properties of [illegible] sess their usefulness. [illegible]

Card 2/2

VOL'PE, R.I.; ZHEMKOV, A.S.

Some problems in the revision of topographic maps. Geod. i kart. no. 12:25-30 D '60. (MIRA 14:1)
(Topographic maps)

66207
SOV/146-58-6-13/16

~~24(0)~~ 24.5200
AUTHORS: Kudryashev, L.I., Doctor of Technical Sciences, Professor, and Zhemkov, L.I. Aspirant

TITLE: Generalization of Regular Heat Condition in the Case of Variable Heat-Capacity and Heat-Conductivity Coefficients

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Priborostroyeniye, 1958, Nr 6, pp 100-108 (USSR)

ABSTRACT: Theoretical methods of establishing regular heat conditions are of late widely used in different thermal computations. This was shown with complete clarity at the 1st Inter-University Conference held in March, 1958. Thus far, the theory of heat regularity was based on the assumption of constancy of thermophysical properties of a given substance. The authors of this article consider the problem from a different angle, namely, they generalize the above theory by admitting the variability of the heat-capacity and heat-conductivity coefficients. For this purpose, a new integral function:

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Generalization of Regular Heat Condition in the Case of Variable Heat-Capacity and Heat-Conductivity Coefficients

$\Phi = \int_0^\tau \frac{\lambda}{c\gamma} d\tau$, instead of temperature t, and a new argument $\xi = \int_0^\tau a d\tau$ instead of time τ have been introduced.

These new formulae permit solution of the problem of linearization of non-linear differential equations that express the process of heat exchange. The authors analyze two cases: 1) there are no internal sources of heat in the body; and 2) there are certain internal sources generating heat present in the body. Experimental research of the new theory was performed assuming a strong variability of thermophysical properties of researched substance. To this end, graphite, on account of its considerable change-ability of heat-conductivity depending on temperature, was selected. The theory of temperature regularity, as expounded at one time by G.M. Kondrat'yev, represents a particular case of the theory considered in this article.

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66207

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Generalization of Regular Heat Condition in the Case of Variable Heat-Capacity and Heat-Conductivity Coefficients

There are 2 graphs and 7 Soviet references.

ASSOCIATION: Kuybyshevskiy industrial'nyi institut imeni V.V. Kuybysheva (Kuybyshev Industrial Institute imeni V.V. Kuybyshev)

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SUBMITTED: December 20, 1958

Card 3/3

24(8) SOV/170-59-4-10/20

AUTHORS: Kudryashev, L.I., Zhemkov, L.I.

TITLE: A Generalized Theory of Regular Thermal Behavior for the Case of Variable Thermophysical Characteristics (Obobshcheniye teorii regulyarnogo teplovogo rezhima na sluchay peremennykh teplofizicheskikh kharakteristik)

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1959, Nr 4, pp 72-77 (USSR)

ABSTRACT: The case when thermal sources and outlets exist in a body is described by a system of non-linear differential equations which do not possess the property of regularity. The problem of their linearization is solved by the authors by means of introducing a new thermodynamic potential Φ instead of temperature t and an integral argument ξ instead of time τ. The performance of this transformation leads to a linear differential equation

$$\frac{\partial \Phi}{\partial \xi} = \nabla^2 \Phi + q_v$$

where q_v is the intensity of thermal sources or outlets. Therefore the Fourier method of solving this equation in the form of a product of two independent functions is applicable to this case. This furnishes the possibility of generalizing the theory

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A Generalized Theory of Regular Thermal Behavior for the Case of Variable Thermophysical Characteristics

of thermal regularity to the case of variable thermophysical properties. It turned out that Kondrat'yev's theory of regular thermal behavior is a particular case of the present generalized theory. Expressions are found for the rate m_Φ and coefficient of irregularity of the field Ψ_Φ, both for the case of heat transfer without inner sources of heat and with them. Various cases of the relationship between the intensity of heat transfer and sources of heat are analyzed graphically. A single-valued relationship is found between the intensity of heat transfer and heat m_Φ in the case of variable coefficients of heat conductivity and heat capacity. A series of experiments were carried out in an aerodynamical tube by blowing the air over cylindrical calorimeters which had been pre-heated. Calorimeters were made of graphite and steel, and experiments were performed in the Re-range from 1,000 to 50,000. They confirmed that there exists a regular relationship between the function Φ and the argument ξ and showed that the generalized theory proposed could be recommended for practical calculations of non-stationary thermal

A Generalized Theory of Regular Thermal Behavior for the Case of Variable Thermophysical Characteristics

processes for substances with variable thermophysical characteristics.
There are 7 Soviet references.

ASSOCIATION: Industrial'nyy institut (Industrial Institute), Kuybyshev

05271
SOV/170-59-7-2/20

24(8)

AUTHORS: Zhemkov, L.I., Kudryashev, L.I.

TITLE: A Generalization of G.M. Kondrat'yev's Theorem for the Case of Variable Thermo-Physical Characteristics

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1959, Nr 7, pp 8 - 12 (USSR)

ABSTRACT: The theorem of G.M. Kondrat'yev, occupying a central place in the theory of regular temperature conditions, was proven only for the case of λ = const and c_p = const. On the basis of their previous paper [Ref 2] in which the authors linearized Fourier's non-linear differential equation of conductivity, they generalized the theory of thermal regularity for the case of variable thermo-physical characteristics, thereby proving the first part of Kondrat'yev's theorem for this generalized case. In the present paper they generalize the second part of Kondrat'yev's theorem on the limiting value of the rate $m\varphi$ at the infinite value of heat exchange coefficient on the surface of a body. The authors found that this limiting value of temperature conductivity coefficient depends only on a factor introduced by Kondrat'yev [Ref 1], which was named the coefficient K of the shape of a body, Formula 4. Formula 10 shows that the limiting rate of temperature changing with time varies in the same way as does the

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05271
SOV/170-59-7-2/20

A Generalization of G.M. Kondrat'yev's Theorem for the Case of Variable Thermo-Physical Characteristics

coefficient of temperature conductivity. Kondrat'yev's theorem is generalized for any value of the heat transfer coefficient. It makes possible to study thermal properties of substances and to determine the coefficient of temperature conductivity a.
There are 2 Soviet references.

ASSOCIATION: Industrial'nyy institut (Industrial Institute), Kuybyshev.

Card 2/2

32262
S/612/59/000/008/001/016
D216/D304

24.5200

AUTHORS: Kudryashev, L. I., Doctor of Technical Sciences, Professor, and Zhemkov, L. I. Aspirant

TITLE: The generalized theory of the regular thermal regime for the case of varying coefficients of thermal conductivity and specific heat

SOURCE: Kuybyshev. Industrial'nyy institut. Sbornik nauchnykh trudov. No. 8, 1959. Teplotekhnika; voprosy teorii, rascheta i proyektirovaniya, 3-17

TEXT: This paper presents a theoretical solution of the title problem and gives an experimental check of the results. When the coefficients of thermal conductivity λ and specific heat C_p vary with temperature, the differential equation of thermal conductivity becomes non-linear, and the first problem tackled is its linearization. Consider non-stationary heating or cooling of a body, volume V with heat-exchanging surface F. For an isobaric process, the energy balance equation may be written

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The generalized theory ...

$$\int_V q_v dV = \frac{\partial}{\partial \tau} \int_V \gamma i dV + \int_F q_n dF \qquad (1)$$

where q_v is the intensity of the internal heat source per unit volume, q_n the thermal current vector, γ the specific gravity, i the enthalpy, and τ the time variable. The authors choose to limit Eq. (1) with the equation of conservation of mass, since it formulates the problem in a more general form. From this condition, Ostrogradskiy's theorem

$$\int_F q_n dF = \int_V \mathrm{div} q_n \, dV \qquad (4)$$

and Fourier's hypothesis

X

The generalized theory ...

$$q_n = -\lambda \operatorname{grad} t \qquad (5)$$

and expressing i as a function of C_p and temperature t, (1) may be rewritten as

$$\gamma C_p \frac{\partial t}{\partial \tau} = \operatorname{div}(\lambda \operatorname{grad} t) + q_V \qquad (10)$$

The initial condition

$$\tau = 0 \qquad t = t_o(x,y,z) \qquad (12a)$$

and the condition that cooling proceeds by Newton's law must be remembered. When λ and C_p are temperature dependent, (10) with the

Card 3/9

The generalized theory ...

conditions becomes non-linear, and a new function $\Phi = \int_0^i \frac{\lambda}{c_p} di$ is introduced in place of temperature τ and a new integral argument $\xi = \int_0^\tau \frac{\lambda}{c_p \delta} d\tau$ in place of time τ. Relations

$$\text{a)} \quad \text{grad } i = c_p \cdot \text{grad } t \tag{13}$$

$$\text{b)} \quad \text{div}(\lambda \text{grad } t) = \nabla^2 \Phi \tag{14}$$

are established, and (10) now becomes

$$\frac{\partial \Phi}{\partial \xi} = \nabla^2 \Phi + q_v \tag{24}$$

Card 4/9

The generalized theory ...

and the linearization is achieved. Now consider the case $q_v = 0$, when the solution of (24) may be written

$$\Phi(\xi,x,y,z,) = \varphi(\xi)\Psi(x,y,z) \qquad (25)$$

and (14) becomes

$$\frac{\varphi'(\xi)}{\varphi(\xi)} = \frac{\nabla^2\Psi(x,y,z)}{\Psi(x,y,z)} \qquad (26)$$

satisfying the Fourier condition for the function. Thus the relationship between the new functions introduced for the linearization of the thermal conductivity equation shows the property of regularity. Next, the deformation of the temperature field due to variation of λ and C_p is considered. From (14) and (24), with $q_v=0$, using (4) and applying Newton's law of cooling

Card 5/9

The generalized theory ...

$$\frac{1}{\Phi_V} \cdot \left(\frac{\partial \Phi}{\partial \xi}\right)_V = -\frac{\alpha_w t_u F}{V \cdot \Phi_V} \qquad (30)$$

where α is the coefficient of thermal emission, and the subscripts v and w refer to the mean value of the parameter through the volume and its value at the surface of the body respectively. Eq. (25) expresses the constancy of the left-hand side of this equation, which is denoted as the rate of change of Φ with ξ, m_Φ. This function is analogous to the rate m_v for excess temperature in G. M. Kondrat'yev's theory. Integrating

$$m_\Phi = \frac{\ln \Phi_1 - \ln \Phi_2}{\xi_2 - \xi_1} \qquad (34)$$

Card 6/9

The generalized theory ...

Thus, the rate of change of $\underline{\Phi}$ with time, $m'_{\underline{\Phi}}$, is related to $m_{\underline{\Phi}}$ by

$$m'_{\underline{\Phi}} = \left(\frac{\lambda}{c_p \gamma}\right)_m \cdot m_{\underline{\Phi}} \qquad (38)$$

where the subscript m refers to the mean value through the studied interval of time, and the coefficient of inequality of the temperature field Ψ is given by

$$\Psi = \frac{\lambda_v t_w}{\Phi_v} \qquad (40)$$

This differs from the value obtained in the temperature regular regime. Evidently, the similarity of the equations shows that the temperature regular regime theory is a particular example of the generalized theory of the regular thermal regime. Experimental tests of the theory were made using materials with strongly temperature-

Card 7/9

The generalized theory ...

dependent thermophysical properties - graphite and steel 3, in the form of a cylinder 50 mm diameter, 400 mm long. 4 thermocouples gave an approximate picture of the temperature distribution in the sample, and their disposal relative to the current of cooling air, the velocity of this current, and the temperature to which the sample was initially heated were all varied. The results indicate that the introduction of the function Φ took account of temperature dependence of the properties of the coolant as well as of the specimen . The rate m_v did not remain constant during an experiment, m'_{Φ} was also not constant but varied much less, and finally m_{Φ} was constant over all ranges of ξ studied, and was also the same at all points observed on the sample. The results completely confirm the theory for all values of Reynolds' number of the coolant from 1,000 - 50,000. Conclusions: Substitution of a new thermodynamic potential Φ in place of temperature, and a new integral argument ξ in place of time permit linearization of the differential equation of thermal conductivity, and hence a generalized theory of the regular

Card 8/9

32262

S/612/59/000/008/001/016
D216/D304

The generalized theory ...

thermal regime for varying coefficients of thermal conductivity and specific heat is constructed. An equation for the rate m_0 is obtained and a generalized conception of the coefficient of inequality of the temperature field is established. A practical test of the theory gives positive results. There are 8 Soviet-bloc references.

Card 9/9

32263
S/612/59/000/008/002/016
D216/D304

24.5200

AUTHORS: Kudryashev, L. I., Doctor of Technical Sciences, Professor, and Zhemkov, L. I., Aspirant

TITLE: The regular thermal regime in bodies with internal sources of energy for varying thermophysical properties

SOURCE: Kuybyshev. Industrial'nyy institut. Sbornik nauchnykh trudov. No. 8, 1959. Teplotekhnika; voprosy teorii, raschety i proyektirovaniya, 19-22

TEXT: In this paper, the authors extend their generalized theory of the regular thermal regime for varying coefficients of thermal conductivity and specific heat to the discussion of thermal emission by bodies with an internal heat source. The linearized version of the non-linear differential equation of thermal conductivity obtained by the authors in their generalized theory is

$$\frac{\partial \vartheta}{\partial \xi} = \nabla^2 \vartheta + q_v \qquad (1)$$

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D216/D304

The regular thermal ...

where $\underline{\phi} = \int_0^i \frac{\lambda}{c_p} di$, $\xi = \int_0^\tau \frac{\lambda}{c_p j} d\tau$, q_v is the internal source intensity per unit volume, λ the thermal conductivity, c_p the specific heat, j the specific gravity, i the enthalpy, and τ the time variable. This equation is regular if

$$q_v = \beta \underline{\phi}_v \qquad (2)$$

holds, where $\underline{\phi}_v$ is the average value throughout the volume of the body and β is a function of coordinates only. From these equations

$$\ln \underline{\phi} = - m' \xi + \text{const} \qquad (7)$$

where

Card 2/3

The regular thermal ...

$$m' = \frac{\ln \Phi_1 - \ln \Phi_2}{\xi_2 - \xi_1} \qquad (8)$$

$\beta = \Phi$ corresponds to the regular thermal regime without a heat source, $\beta = m$ to a stationary regime, and the intermediate cases to different regimes of regular cooling. The case $m = 0$ corresponds to a constant body with ideal insulation, and the rate of heating or cooling is determined only by the intensity of the source or sink of heat and the thermophysical properties of the body. There are 3 Soviet-bloc references.

Card 3/3

32264
S/612/59/000/008/003/016
D216/D304

24.5200

AUTHORS: Kudryashev, L. I., Doctor of Technical Sciences, Professor, and Zhemkov, L. I., Aspirant

TITLE: Generalization of G. M. Kondrat'yev's theorem to the case of varying coefficient of thermal conductivity and specific heat, and the use of the generalized theorem for determining the thermophysical properties of materials

SOURCE: Kuybyshev. Industrial'nyy institut. Sbornik nauchnykh trudov. No. 8, 1959. Teplotekhnika; voprosy teorii, raschety i proyektirovaniya, 23-29

TEXT: In this paper the restrictions that thermal conductivity λ and specific heat C_p should remain constant are removed from Kondrat'yev's theorem (Ref. 1: Regulyarnyy teplovoy rezhim. GTTI, 1954) dealing with the rate of cooling of a body. The first part of the theorem in the generalized case is essentially proved in the authors' generalized theory of the regular thermal regime. The

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Generalization of Kondrat'yev's ...

second part, concerning the limiting value of the rate of cooling for an infinite coefficient of thermal emission from a body, is considered. The heat exchange equation in the linearized form obtained by the authors in the generalized theory may be written as

$$-\frac{\left(\frac{\partial \Phi}{\partial n}\right)_w}{\Phi_w} = \varsigma \qquad (2)$$

where $\Phi = \int_0^i \frac{\lambda}{c_p}\, di$, i is the enthalpy, and the subscript w refers to the surface of the body. [Abstractor's note: n and ς are not defined.] Here, the rate m_Φ of the change of Φ, with respect to ξ, where $\xi = \int_0^\tau \frac{\lambda}{c_p \gamma}\, d\tau$ and λ - specific gravity, τ = time, analogous

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Generalization of Kondrat'yev's ...

to Kondrat'yev's rate of cooling, must have a finite value if the coefficient of thermal emission $\alpha_w \to \infty$. As an example, an infinite shell is considered, and from the solution of the linearized thermal conductivity equation obtained by the authors in the reference above, the limiting value of $m_{\bar{\Phi}}$ becomes

$$m_{\bar{\Phi}}\Big|_{\alpha_{w}\to\infty} = \left(\frac{\pi}{2X}\right)^2 = \text{const} \qquad (5)$$

[Abstractor's note: X is not defined.] This ratio is the reciprocal of K, the coefficient of form first introduced by Kondrat'yev, and for any particular body this is also the case. This generalization of the second part of Kondrat'yev's theorem has a wide practical value. From (5), and using the relationship

$$\bar{\Phi} = \int_0^i \frac{\lambda}{c_p}\, di = \int_0^i \gamma a\, di = \gamma \bar{a} i \qquad (8)$$

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Generalization of Kondrat'yev's

between φ and the coefficient of temperature conductivity a, the limiting value of the rate of change of temperature with time is found to depend on

$$m_v\Big|_{\alpha_{w\to\infty}} = \frac{1}{t}\cdot\frac{\partial t}{\partial \tau} = -\frac{a}{K} \qquad (13)$$

and also the relation

$$m_v = -\frac{1}{t}\cdot\frac{\partial t}{\partial \tau} = m_\varphi a \qquad (15)$$

holds. m_φ is a constant for each fixed value of thermal emission which may occur in an experiment, and is present only as a coefficient of proportionality. Kondrat'yev's theorem is, therefore, generalized for the case of any value of the coefficient of thermal

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Generalization of Kondrat'yev's ...

emission, and is much more effective than the theory of temperature regularity for studying the thermophysical properties of materials, in particular for determining the coefficient of temperature conductivity. There are 2 Soviet-bloc references.

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ZHEMKOV, L. I. and KUDRYASHEV, L. I.

"Use of the generalized theory of heat regularity for studying the relations between internal and external heat-exchange."

Report presented at the 1st All-Union Conference on Heat- and Mass- Exchange, Minsk, BSSR, 5-9 June 1961

ACC NR: AP7003156 SOURCE CODE: UR/0368/66/005/006/0798/0800

AUTHOR: Kudryashiv, L. I.; Zhemkov, L. I.; Vekshin, V. S.; Belostotskiy, B. R.

ORG: none

TITLE: Thermal regime of the active element of a laser of finite length

SOURCE: Zhurnal prikladnoy spektroskopii, v. 5, no. 6, 1966, 798-800

TOPIC TAGS: laser, laser rod, laser active body, laser rod geometry, laser rod length, laser rod length effect

ABSTRACT:
The analysis of pulse-type operation proceeds from the physical character of the heat exchange and the geometry of the body. An equation describing the temperature fields in a circular cylinder of finite dimensions is obtained. An analysis is also made of the cooling phase of the operational cycle. An equation is derived to describe the temperature field with constant cycle duration and duty factor, for any number of successive cycles. The theoretical findings are applied to a real case of two cylindrical bodies, one with a length equal to its radius, the other with a length-to-radius ratio of 10:1; the results show a much weaker effect of the end surfaces in the latter case. Orig. art. has: 22 formulas.

SUB CODE: 20/ SUBM DATE: 31Jan66/ ORIG REF: 004/ ATD PRESS: 5112

Card 1/1 UDC: 535.89

L 15983-66 EPF(n)-2/EWA(h)/EEC(k)-2/ENT(1)/FBD/ETC(f)/T/ENP(k)/ENT(m)

ACC NR: AP6005468 SOURCE CODE: UR/0368/66/004/001/0012/0019

AUTHOR: Kudryashev, L. I.; Belostotskiy, B. R.; Zhemkov, L. I.; Vekshin, V. S.

ORG: none

TITLE: Approximate solution for the problem of nonstationary heat exchange in the active element of a laser

SOURCE: Zhurnal prikladnoy spektroskopii, v. 4, no. 1, 1966, 12-19

TOPIC TAGS: laser pulsation, laser optics, heat transfer, solid state laser

ABSTRACT: The processes of nonstationary heat exchange which takes place during the operation of a pulsed laser are mathematically analyzed. The active element of the laser is assumed to be a solid cylinder with a ratio of length to diameter of approximately 10. The problem is described by a system of four equations. This system of equations is simplified by assuming that the coefficient of thermal conductivity, specific heat and density of the active element are independent of temperature. The system is solved by the variational method for an isolated cycle of laser operation. A formula is derived for the temperature field inside the active element

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L 15983-66

ACC NR: AP6005468

in the case of continuous laser operation assuming an arbitrary number of cycles with a constant prf. Expressions are derived for the basic factors which determine heat exchange of the active element: thermophysical characteristics, pumping duration and power, the length of a cycle, the pulse repetition frequency and the total operating time of the laser. Equations are given in dimensionless form which may be used in practical engineering problems for analyzing various operating cycles of pulsed lasers and the dimensions of active elements. Orig. art. has: 1 figure, 45 formulas.

SUB CODE: 20/ SUBM DATE: 29Jun65/ ORIG REF: 005/ OTH REF: 000

Card 2/2

L 1571[illegible] EWT(1)/EWG(m)/EPF(n)-2/EWP(t) JD/WW

ACC NR: [illegible]3003095 SOURCE CODE: UR/3181/63/000/015/0257/0266

AUTHOR: Zhemkov, L. I.

ORG: None

TITLE: Investigation of the initial stages of unsteady state heat transfer processes

SOURCE: Kuybyshev. Aviatsionnyy institut. Trudy, no. 15, pt. 2, 1963. Doklady kustovoy nauchno-tekhnicheskoy konferentsii po voprosam mekhaniki zhidkosti i gaza (Reports of the Joint scientific-technical conference on problems of the mechanics of liquid and gas), 257-266

TOPIC TAGS: convective heat transfer, unsteady flow, boundary layer theory

ABSTRACT: The overall formulation of the problem with the desired boundary conditions has the following form:

$$\frac{\partial t}{\partial \tau} = a\nabla^2 t. \quad (2)$$

$$-\lambda_w \cdot \left(\frac{\partial t}{\partial n}\right)_w = \alpha_w \cdot v_w. \quad (3)$$

$$\tau = 0;\ t = t(x, y, z, 0) \quad (4)$$

$$t_f = \text{const.} \quad (5)$$

$$\alpha_w = \text{const.} \quad (6)$$

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ACC NR: AT6003095

Thermophysical properties are assumed to be simple constants. The article, on the above basis, analyses mathematically the initial stages of unsteady state processes. It investigates possible initial conditions in experiments and suggests experimental methods. It is proposed to study unsteady state processes on the basis of measurement of the heat fluxes. It is found that the Newton and Fourier hypotheses, as linear relationships, are not applicable in the initial stages of heat transfer. A modelled function is proposed which makes it possible to investigate the whole heat transfer proces rapidly. Orig. art. has: 31 formulas and 6 figures.

SUB CODE: 20/ SUBM DATE: 00/ ORIG REF: 003/ SOV REF: 000/ OTH REF: 000

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